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AVERAGE AND PROBABILITY.

101. Proposed by L. C. WALKER, Assistant Professor of Mathematics, Leland Stanford Jr. University, Palo Alto, Cal.

By direct calculation obtain the average distance between to points in the surface of a circle.

102. Proposed by PROFESSOR CAVALLIN.

A random straight line is determined by two points taken at random within a sphere; find the average velocity acquired by a particle in descending the line. [No. 6742, *Educational Times*. Unsolved.]

93. Proposed by LON C. WALKER, Assistant in Mathematics, Leland Stanford, Jr. University, Palo Alto, Cal.

A circle is drawn at random both in magnitude and position, but so as to lie wholly on the surface of a given semi-circle. Show that the chance that a radius drawn at random in the semi-circle will cut the circle is

$$\frac{4}{3\pi-4}\left(1 - \frac{1}{\pi} - \frac{2}{\pi}\log 2\right).$$

*** Solutions of these problems should be sent to B. F. Finkel not later than May 10.

MISCELLANEOUS.

102. Proposed by CHARLES C. CROSS, Whaleyville, Va.

Required the least multiple of 17 which when divided by 2, 3, 4, 5, ... 16, leaves, in each case, 1 as a remainder.

103. Proposed by ELMER SCHUYLER, B. Sc., Professor of German and Mathematics in Boys' High School, Reading, Pa.

Solve, $\log \sin x = \sin \log x$.

104. Proposed by HARRY S. VANDIVER, Bala, Pa.

A Theorem of Fermat. The area of a right angled triangle with commensurable sides cannot be a square number. [Cf. *Chrystal's Algebra*, Vol. II., page 535.]

*** Solutions of these problems should be sent to J. M. Colaw not later than May 10.

NOTES.

Gustav Fock is offering for sale the very valuable mathematical library of Dr. Bruno Christoffel.

Professor M. Cantor of Heidelberg, has been elected a correspondent of the St. Petersburg Academy of Science.

Professor Henry S. White, of Northwestern University, has received leave of absence and will remain abroad until October.

In Italy has just appeared a new mathematical journal issued at Città di Castello by the publisher, S. Lapi, to whom the annual subscription, 12 francs, should be sent. It is a monthly magazine called *Le Matematiche*, under the direction of Prof. C. Alasia with a board of collaborators among whom the English language is represented by G. B. Halsted of Austin, Texas, to whom communications may be sent, which will appear in Italian. On the Editorial Board may also be noted the Russian, Vasiliev, and one of the greatest of living mathematicians, Poincaré. The first number, February, 1901, contains the last thing ever written for publication by the illustrious Hermite, dated January, 1901, on the 14th of which month he died. This number honors THE AMERICAN MATHEMATICAL MONTHLY by reproducing from it in Italian an interesting note. A new and very suggestive department is introduced under the heading, "Subjects for Research."

BOOKS AND PERIODICALS.

Elements of Physics. By Henry A. Rowland, Ph. D., LL. D., Professor of Physics, and Director of the Physical Laboratory in Johns Hopkins University, and Joseph S. Ames, Ph. D., Professor of Physics and Sub-Director of the Physical Laboratory in Johns Hopkins University. 8vo, cloth, xiii+263 pages. Price, \$1.00. New York and Chicago: The American Book Company.

This text-book is designed to meet the requirements of high schools and normal schools in the subject of Physics and it is based on the principle that the object of physics is two-fold, viz., (1) to train the student in the powers of observation and accurate description, and (2) to cultivate the habits of exact thought and statement. Great emphasis has been put on those points in the study of the subject which are necessary for the mental training of the student and which will make the more elaborate discussions of the subject simpler when the student comes to them. The reputation of its authors assures the highest authority of statement and great care and thought in its preparation.

B. F. F.

The Common Sense of Commercial Arithmetic. By George Hall, Principal of Petersburg Academy, Petersburg, Va. 8vo. Cloth, xii+187 pages. Price, 60 cents. New York: The Macmillan Co.

This book is designed to give pupils a definite idea of the principles of common sense underlying the subject of Arithmetic common to commercial life. Each subject is clearly and carefully treated, many examples solved in complete detail, and many original problems of practical occurrence are proposed for solution. The author's method of presenting percentage is good and his ideas on the subject are sound.

B. F. F.

Non-Euclidean Geometry. By Henry Parker Manning, Ph. D., Assistant Professor of Mathematics in Brown University. 8vo, cloth, 94 pages. Boston and Chicago: Ginn & Co.

This is the first attempt in America to present the Non-Euclidean Geometry in a form suitable for use in schools and colleges. The author lays no claim to originality as to subject matter, as much of the work came to the author through the translations of Dr. Halsted. We believe this little book will do much towards popularizing the subject and thus will bring it within the comprehension of teachers of Geometry. In our next issue Dr. Halsted will give an extended review of the work.

B. F. F.